



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,390	08/04/2006	Shahram Mihan	124-296USLU6161	8381
74275	7590	08/31/2011	EXAMINER	
DILWORTH IP, LLC			NGUYEN, COLETTE B	
2 CORPORATE DRIVE, SUITE 206				
TRUMBULL, CT 06611			ART UNIT	PAPER NUMBER
			1732	
			MAIL DATE	DELIVERY MODE
			08/31/2011	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* SHAHRAM MIHAN  
and MICHAEL HESSE

---

Appeal 2010-004173  
Application 10/588,390  
Technology Center 1700

---

Before CHUNG K. PAK, CHARLES F. WARREN, and  
TERRY J. OWENS, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's final rejection of claims 1 through 19, all of the claims pending in the above-identified application.<sup>1</sup> We have jurisdiction under 35 U.S.C. § 6.

STATEMENT OF THE CASE

The subject matter on appeal is directed to "a process for preparing a support for catalysts" involving the use of a finely particulate hydrogel

---

<sup>1</sup> See Corrected Appeal Brief ("App. Br.") filed August 10, 2009, 2; and Examiner's Answer ("Ans.") filed November 12, 2009, 2.

having particular particle distributions obtained from milling a hydrogel (Spec.3, ll. 1- 20). The Specification, at page 4, lines 5-10, states:

For the purposes of the present invention, the term “hydrogel” refers to all hydrogels which are suitable for producing supports, preferably those based on inorganic hydroxides. The term “hydrogel” preferably refers to hydrogels based on silicon-containing starting materials, particularly preferably to hydrogels based on silica.

The Specification also states that “the hydrogel is preferably milled moist and/or wet” and “[d]uring this milling step, …inorganic oxides, oxide-hydroxide and/or xerogels can be added to the hydrogel” (Spec. 9, ll. 23-25). The support is said to be useful for preparing supported catalysts “for the polymerization and/or copolymerization of olefins” (Spec. 3, ll. 24-26).

Details of the appealed subject matter are recited in representative independent claim 1<sup>2</sup> reproduced from the Claims Appendix to the Appeal Brief as shown below:

1. A process for preparing a support for catalysts, which comprises:
  - a) preparing a hydrogel;

---

<sup>2</sup> 37 C.F.R. § 41.37(c)(1)(vii) (2007) states that “[w]hen multiple claims subject to the same ground of rejection are argued as a group by appellant, the Board may select a single claim from the group of claims that are argued together to decide the appeal with respect to the group of claims as to the ground of rejection on the basis of the selected claim alone.” Therefore, for purposes of this appeal, we select claim 1 and decide the propriety of the Examiner’s rejection of claims 1-19 based on claim 1 alone pursuant to 37 C.F.R. § 41.37(c)(1)(vii).

- b) milling the hydrogel to give a finely particulate hydrogel having a solids content;
- c) producing a slurry having a solids content, the slurry comprising the finely particulate hydrogel;
- d) drying the slurry comprising the finely particulate hydrogel, thereby forming a support for catalysts,

wherein the finely particulate hydrogel comprises:

- at least 5% by volume of the particles, based on the total volume of the particles, have a particle size in the range from  $> 0 \mu\text{m}$  to  $\leq 3 \mu\text{m}$ ; and
- at least 40% by volume of the particles, based on the total volume of the particles, have a particle size in the range from  $> 0 \mu\text{m}$  to  $\leq 12 \mu\text{m}$ , and
- at least 75% by volume of the particles, based on the total volume of the particles, have a particle size in the range from  $> 0 \mu\text{m}$  to  $\leq 35 \mu\text{m}$ .

Appellants seek review of the Examiner's rejection of claims 1 through 19 under 35 U.S.C. § 102(b) as anticipated by the disclosure of U.S. Patent 6,329,315 B1 issued to Denton et al. on December 11, 2001 (hereinafter referred to as "Denton"). (*See* App. Br. 4.)

#### RELEVANT FACTUAL FINDINGS,

1. Denton teaches a method of making "novel agglomerate support compositions that are particularly useful for certain polyolefin polymerization catalysts." (*See* col. 1, ll. 14-16.)

2. Denton teaches milling or milling in slurry (wet milling) silica hydrogel and other materials, such as inorganic oxides, just prior to spray drying. (*See* col. 9, ll. 1-19 and col. 8, ll. 31-37.)
3. Denton teaches that “a wet milled silica hydrogel containing minimum amounts of colloidal size particles which function as a binder in the presently claimed invention.” (*See* col. 3, ll. 46-49.)
4. Denton teaches that “[t]he goal of the milling procedure is to ultimately provide...an average particle size of typically from about 3 to about 10 preferably from about 4 to about 9, and most preferably from about 4 to about 7 microns [and] [d]esirably the milling procedures will also impart a particle size Distribution Span to the particles in the slurry to be spray dried of typically from about 0.5 to about 3.0 [microns], and preferably from about 0.5 to about 2.0 [microns].” (*See* col. 9, l. 60 to col. 10, l. 1.)
5. Denton teaches that “[a] well milling procedure is characterized by the presence of liquid, e.g., water, during the milling procedure....typically performed on a slurry of the inorganic oxide particles having a solid content” and in a dry milling procedure an inorganic oxide having a moisture content of less than 50% is milled. (*See* col. 11, ll. 1-22.)
6. Denton teaches that “[d]ry milling typically does not produce colloidal silica...[and] [t]he colloidal particles within the wet milled material is the primary source of the colloidal content in the slurry to be spray dried as described above, and is believed to act as a binder upon spray drying.” (*See* col. 11, l. 56 to col. 12, l. 2.)

7. Denton teaches dry milling silica gel, wet milling silica gel, adding the resulting dry milled silica gel in the form of powder or slurry to the resulting wet milled silica gel slurry, and spray drying the slurry to from agglomerated catalyst support particles. (*See* col. 12, ll. 3-28).
8. Denton exemplifies wet milling silica gel until the particle size distribution of the wet milled silica gel is 3microns for D10, 8-10 microns for D50 and 25-30 microns for D90 (which is encompassed by the claimed particle size distribution) and spray drying the resulting slurry from the wet milling after adding the silica gel particles from the dry milling. (*See* col. 20, l. 40 to col. 21, l. 2, Examples 3 and 4 and cols. 25 and 26, Tables 2 and 3).

#### PRINCIPLES OF LAW

Anticipation is a question of fact. *In re Baxter Travenol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991).

As set forth by our reviewing court in *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 772 (Fed. Circ. 1983), to establish anticipation under 35 U.S.C. § 102(b), it is only necessary for claims to “‘read on’ something disclosed in the reference, i.e., all limitations in the claim are found in the reference, or ‘fully met’ by it.”

When a claim employs the transitional term “comprising” or “comprises,” it is interpreted as permitting the presence of additional ingredients and/or steps, which are not specifically recited in the claims. *In re Baxter*, 656 F.2d 679, 686-87 (CCPA 1981).

#### ISSUE, ANALYSIS, AND CONCLUSION

Appellants contend that Denton does not teach wet milling a hydrogel to form a finely particulate hydrogel having the claimed particle size distribution (App. Br. 5-6).

Thus, the dispositive question raised is: Has the Examiner erred in finding that Denton describes wet milling a hydrogel to form a finely particulate hydrogel having the claimed particle size distribution within the meaning of 35 U.S.C. §102(b)? On this record, we answer this question in the negative.

As correctly found by the Examiner at pages 3, 4, 7, and 8 of the Answer, Denton teaches wet milling silica gel, particularly silica hydrogel, to produce slurry containing a finely particulate silica hydrogel having the claimed particle size distribution (FF 2, 3, 7, and 8). According to Denton, this slurry, after combining with dry milled silica gel having a moisture content of less than 50%, is spray dried to form a support for a catalyst (FF1 and 5-8). By virtue of using the transitional term “comprises” in claim 1, the additional step of combining the dry milled silica gel to the slurry resulting from the wet milling of the silica hydrogel exemplified by Denton is not precluded. Thus, based on the reasons set forth in the Answer and above, we concur with the Examiner that Denton renders claims 1 through 19 anticipated within the meaning of 35 U.S.C. § 102(b).

***ORDER***

In view of the foregoing, it is

ORDERED that the decision of the Examiner to reject claims 1 through 19 under 35 U.S.C. § 102(b) as anticipated by the disclosure of Denton is AFFIRMED; and

Appeal 2010-004173  
Application 10/588,390

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

sld